

National Marine
Fisheries Service

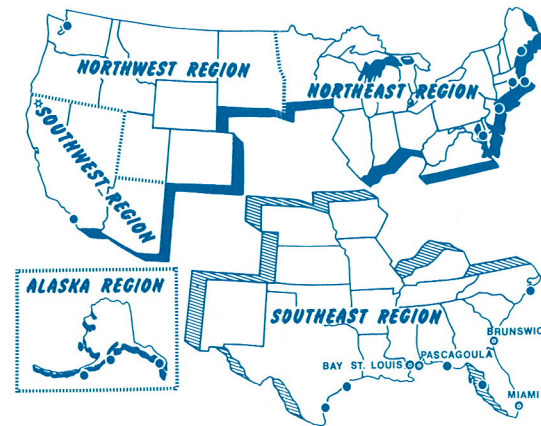
**Southeast
Fisheries
Center**

NOAA

U.S. DEPARTMENT OF COMMERCE

OCT.
1972

NATIONAL MARINE FISHERIES SERVICE REGIONAL ORGANIZATION



- National Marine Fisheries Research Installations
- Southwest Region includes Hawaii laboratory
- Southeast Fisheries Center

INTRODUCTION

The creation of the National Oceanic and Atmospheric Administration (NOAA) in October, 1970 presented the old Bureau of Commercial Fisheries (BCF) with a new identity, transferring it from the Department of Interior to the Department of Commerce and renaming it the National Marine Fisheries Service (NMFS). Along with the change in name came broadened responsibilities. NOAA's overall goals are directed toward the exploration, development, and conservation of our living and non-living ocean resources as well as toward the efficient use of the environment including the assessment of the effects of modifications of the environment upon living marine resources. The organizational change brought about by the need to expand NMFS research horizons represented a departure from the past.

The action integrated the many small laboratories of the BCF into major Centers. The change was made

in order to provide the multidisciplinary research groups and facilities needed to efficiently implement and carry out both national and regional programs concerned with our living marine resources, both commercial and recreational. The primary functions of NMFS are implemented through three Offices: Resource Research, Resource Utilization, and Resource Management.

The Southeast Fisheries Center, under the direction of the Office of Resource Research, is responsible for conducting research leading to the solution of fisheries problems of a national nature that will allow a more adequate and rational utilization, management, and conservation of the fishery resources available to the U.S. fishing industry and the recreational fishing public.

As shown on the map illustrated on the preceding page, the U. S. is divided into four major areas for fishery research purposes: the Northwest, the Southwest, the Northeast, and the Southeast Regions. The Southeast Fisheries Center is con-

SOUTHEAST FISHERIES CENTER

PASCAGOULA
LABORATORY

MIAMI
LABORATORY

BRUNSWICK
LABORATORY

BAY ST. LOUIS
LABORATORY

cerned with reaching an understanding of the living marine resources of the Atlantic Ocean southward from Cape Hatteras, N. C. through the Gulf of Mexico and into the Caribbean Sea and their relationship with their environment. This area comprises one of the least understood but most complex geographical regions of the world in terms of fisheries. The following pages are devoted to showing a small cross-section of the research being conducted by each of the individual installations comprising the Southeast Fisheries Center.

The four physical plants and the two research vessels of the Center are located at Bay St. Louis, Mississippi; Pascagoula, Mississippi; Brunswick, Georgia; and Miami, Florida.

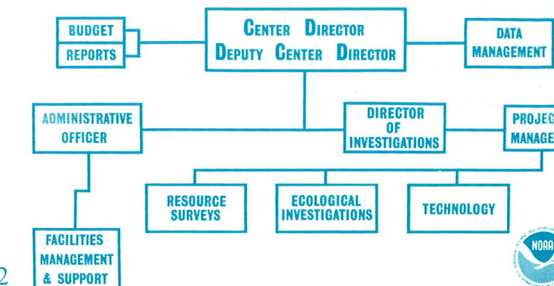
The Fishery Engineering Laboratory is located at the NASA/Mississippi Test Facility near Bay St. Louis and occupies office and laboratory space in the main Administration Building and at the Vertical Checkout Building there. Under the NASA/NOAA umbrella agreement, physical facility needs are negotiated at the time that they are required. The Pascagoula Facility includes a main laboratory building, a 140-foot deep-water dock, and two dockside buildings. The complex houses offices, laboratories, library, warehouses, and

a 10,000-gallon sea-water system. The installation also contains a photographic laboratory, a drafting room, and a diving locker. The R/V OREGON II, based at Pascagoula, is capable of extended cruises and is suitably equipped for a wide range of ocean research activities. Quarters are provided for a crew of 15 and a scientific complement of 14.

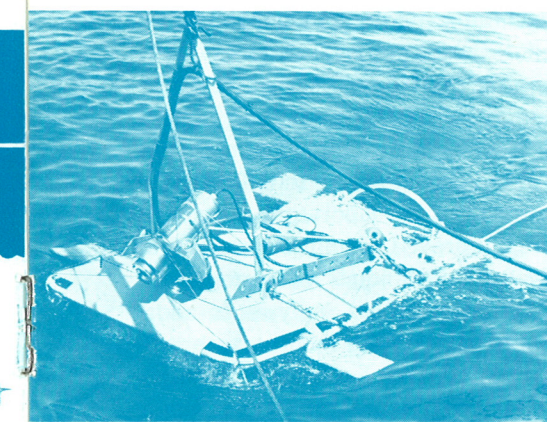
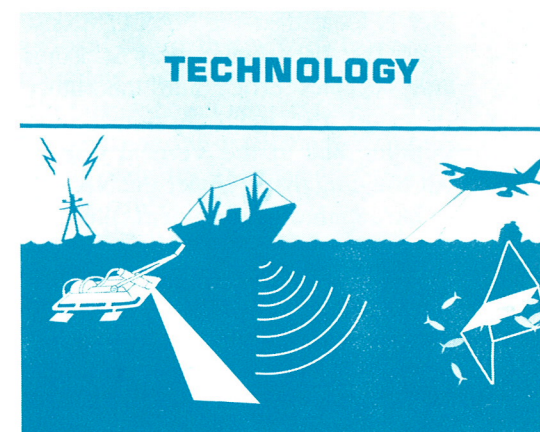
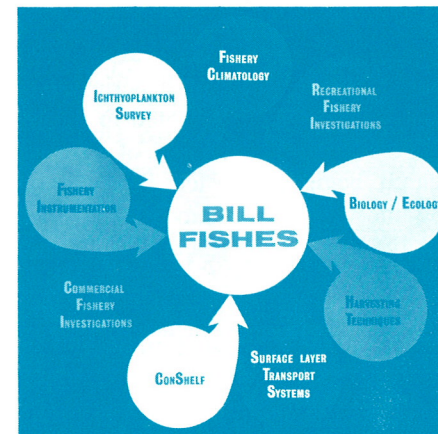
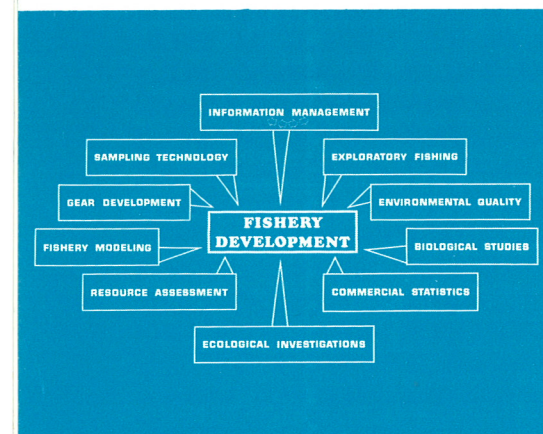
The Brunswick Facility occupies a portion of the third floor of the Federal Office Building and includes offices, laboratories, a library, and storage areas. A dock and warehouse facility are located at St. Simons Island for the R/V GEORGE M. BOWERS. This vessel, somewhat smaller than the R/V OREGON II, is operationally limited to coastal waters within 75-100 miles of land. Quarters are provided for a crew of 4 and a scientific complement of 6.

The Miami Facility consists of a 3-story building of approximately 50,000 square feet equipped with laboratories, offices, a library, data processing and storage areas, a photographic laboratory with darkroom, and storage areas. Located on the bay side of the laboratory is a small dock, a 20-foot power boat, and an open seawater system. The Southeast Fisheries Center offices are housed in this Facility.

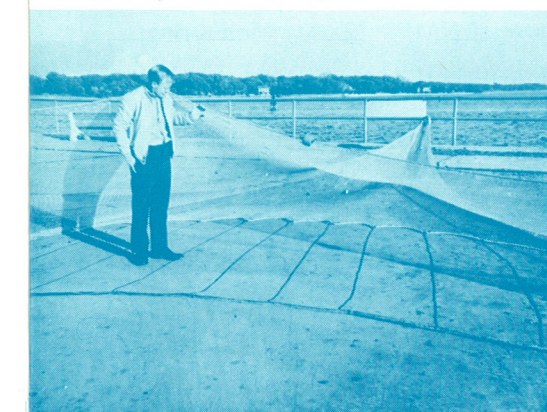
SOUTHEAST FISHERIES CENTER TABLE OF ORGANIZATION



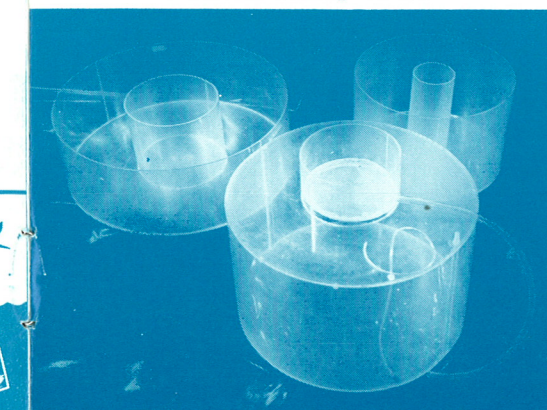
U. S. Department of Commerce
 Peter Peterson, Secretary
 National Oceanic and
 Atmospheric Administration
 Robert M. White, Administrator
 National Marine Fisheries Service
 Philip M. Roedel, Director
 Office of Resource Research
 William F. Royce, Associate Director
 Southeast Fisheries Center
 Harvey R. Bullis, Jr., Director



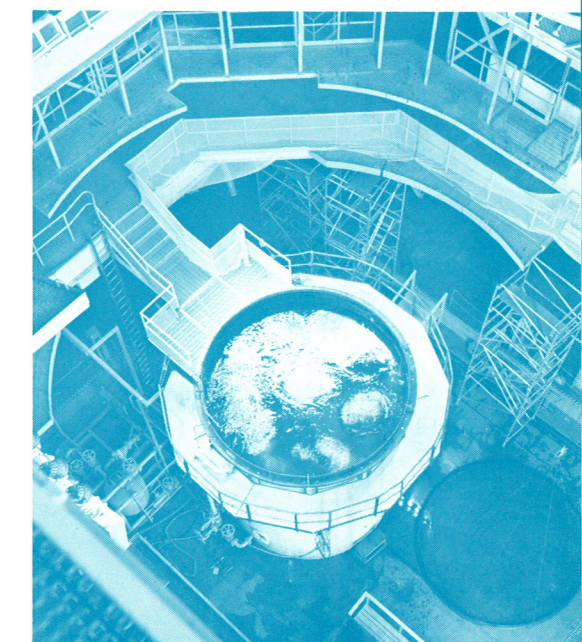
Remote Underwater Fisheries Assessment System. (RUFAS).



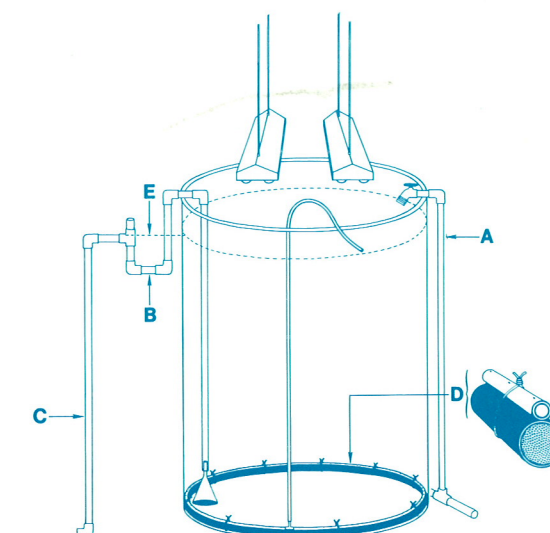
Electrical Shrimp Trawl



Research Aquarium Suitable for Ship-board Use.

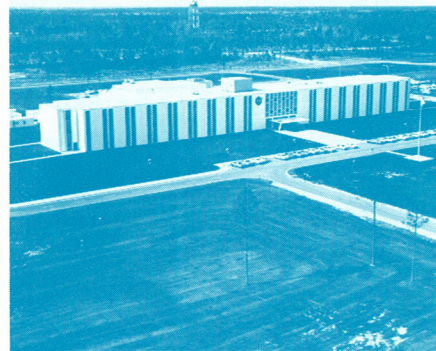


Freshwater Instrumentation Testing System.



Culture System Used To Rear the Pelagic Larvae Of Marine Fishes.

Equipment developed by the Southeast Fisheries Center staff.



MTF Engineering and Administration Bldg. NMFS Fisheries Engineering Laboratory offices located on 3rd floor, left wing.

FISHERIES ENGINEERING LABORATORY, BAY ST. LOUIS, MISSISSIPPI

The Fisheries Engineering Program seeks to advance fishery technology through the development of systems to allow remote sensing of biological

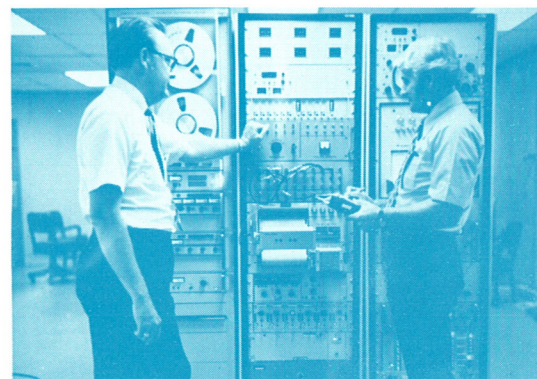


Seineing of Sunfish to be used in Remote Sensing Experiments.

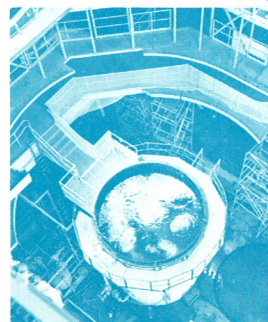


Seined Mullet to be used in Test Impoundment.

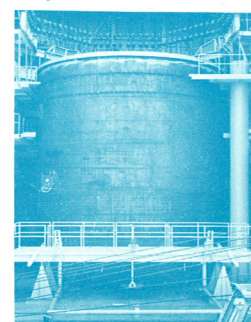
targets and environmental phenomena, and through the application of systems methodology to research problems such as the automatic 'aging' of fishes and automated plankton sorting and identification. Personnel stationed at the laboratory are developing improved sampling systems and advanced techniques of systems applications and data analysis. In addition to supporting the research objectives of the Southeast Fisheries Center programs, the Fisheries Engineering Program also carries out programs supportive to the national programs of NMFS, Marine Monitoring, Assessment and Prediction (MAR-MAP), producing results that are utilized by the four other nationally oriented Fisheries Centers.



Data Logger System



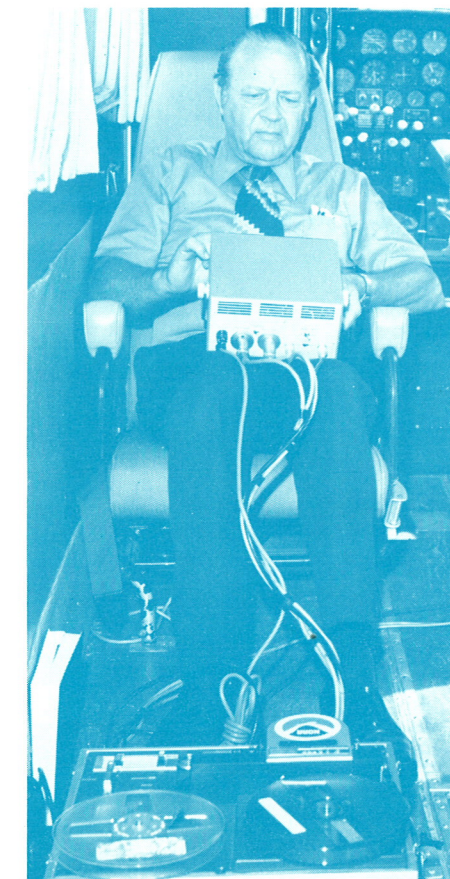
Freshwater Impoundment



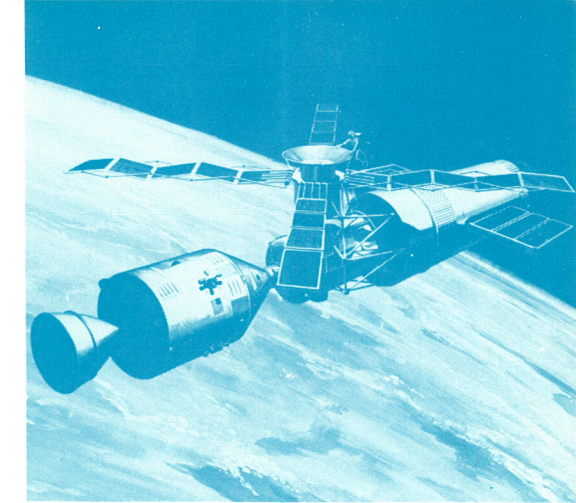
Saltwater Impoundment

The **Skylab** experiment will encompass the entire sensor/environment/resource/application field, working on the feasibility of utilizing satellite imagery to assess, and monitor the distribution and abundance of living marine resources.

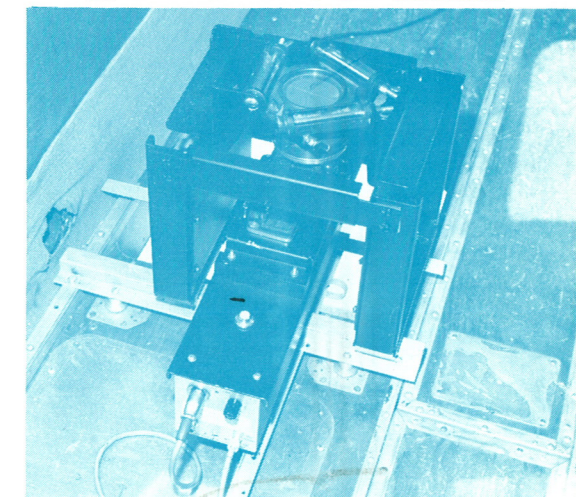
The Acoustics Systems project is designed to test the value of utilizing hydroacoustics in an operational assessment system through the use of sound wave patterns to detect and quantify fish schools.



Technician operating Low Light Level Image Intensifier.



SKYLAB—ORBITING LABORATORY



Low Light Level Image Intensifier (Installed in aircraft).

Typical activities of this laboratory's staff include research on the application of a Low Light Level Image Intensifier System to the problem of locating and detecting fish schools at night. The airborne low light sensor detects fish schools by measuring the luminescent halos surrounding them. If successful, the LLLII would provide a means for the rapid detection of schooling fish, the collection of size and density data in regard to the schools, and eventually as a direct aid to the commercial fishing industry.

[illegible][illegible]

**BRUNSWICK LABORATORY,
BRUNSWICK, GEORGIA**

Personnel stationed at this Laboratory conduct exploratory fishing cruises to systematically assess the fishery resources of the southeast Atlantic, the Gulf of Mexico, and the Caribbean Sea and provide information of benefit to the commercial and sport fishing industries.

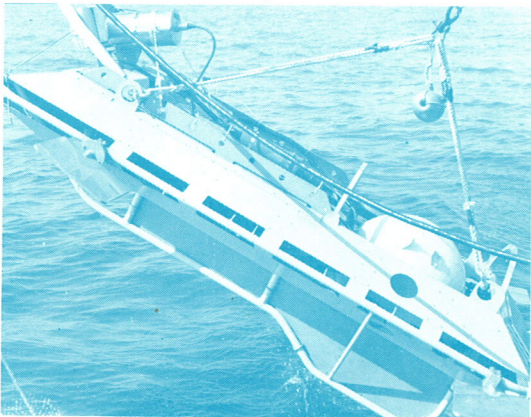
Exploratory coverage of the continental shelf and slope areas from Cape Hatteras, N. C. to Recife, Brazil is of a continuing nature. Information concerning the living resources of this region as to type availability, and location has been obtained through extensive fishing operations. Current investigations include mapping the Calico scallop resource using the Remote Underwater Fisheries Assessment System (RUFAS) which is equipped with an underwater TV camera and a 35mm camera. The scientists scan the ocean bottom on the scallop grounds using RUFAS throughout the month of May. Using the information gathered they then predict for the September fishery those areas in which the industry's vessels should fish and estimate the probable catch in each area. RUFAS was developed for the study of shal-



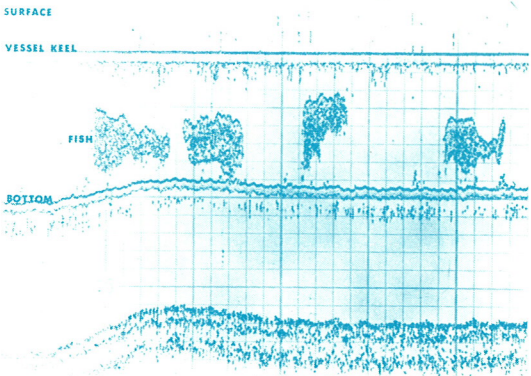
Federal Building, Brunswick, Georgia.
NMFS offices located on 3rd floor.

low water resources and is particularly useful in locating and assessing commercial concentrations of scallops, clams, and other relatively stationary animals. Other research being conducted includes the assessment of coastal shrimp stocks in the Caribbean and of the slope fish concentrations off the coast of the southeastern U. S.

RUFAS (Remote Underwater Fisheries
Assessment System.)



Echo Sounder Recording



Surface Schoolfish Observations



Midwater Trawl for Fish and Shrimp

Setting Out Longline Gear



Deepwater Royal Red Shrimp

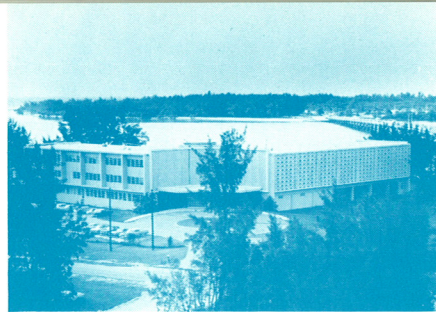


Scallops on Deck



Dumping Tumbler Dredge (50 Bushel)



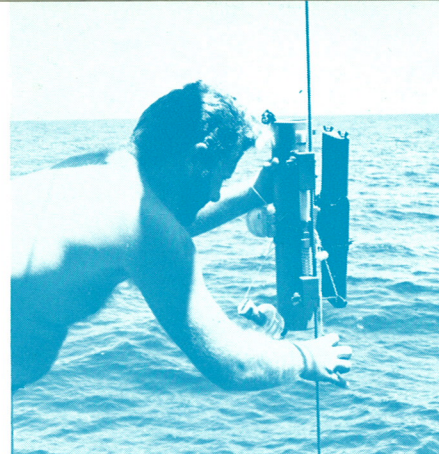


NMFS Miami Laboratory, Miami, Fla. Southeast Fisheries Center Headquarters located on 2nd floor, east wing.

MIAMI LABORATORY, MIAMI, FLORIDA

The MARMAP Survey I Ichthyoplankton Program's research is directed towards sampling the ocean areas for eggs, larvae, and juveniles of fishes. The collections are then identified as to species, geographic distribution, and seasonal distribution. These continuing surveys will establish a data-base to be used in monitoring the abundance, composition, occurrence, and distribution of the principal species of adult fishes found in these waters. As the data-base becomes established it will be used by scientists as an aid in the wise utilization and management of the fishery resources of the U. S. In connection with these studies of fish eggs and larvae, another group of scientists are investigating the factors that control the successful growth of fishes from the egg stage to the adult stage. Knowledge of the various environmental factors affecting the survival of fishes is necessary to predict the probable size and health of our fishery resources. Fishes, representing both sport and commercial species, have successfully been reared at the Laboratory.

Wise management of the living resources of the sea requires an adequate knowledge of the hydro-climate, of the time and space variations of



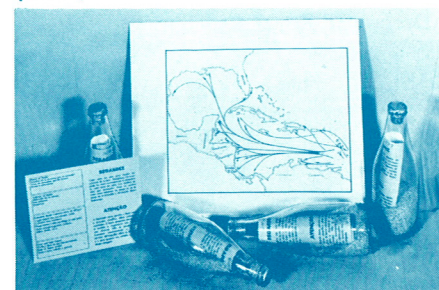
NISKIN Bottle Cast aboard Research vessel.



Four-net Bongo Array with V-fin used for collecting Ichthyoplankton.



Feeding Plankton to Gobies (Gobies spawn their eggs in the tubes shown in photo.)



Drift Bottles—Sea Surface Transport

the ocean environment, of the resources, and of the interactions of these forces. A major responsibility of our oceanographic programs lies in the analysis of basic ocean properties and their short-term and long-term effects on our fishery resources. Scientists are interested in defining the physical environment pertinent to the upper layers of the Gulf of Mexico, Caribbean Sea, and Southern Atlantic Ocean. This study is pursued in close harmony with the MARMAP Ichthyoplankton Survey in order to establish fish egg and larvae distribution patterns as well as to determine the effect of these environmental factors upon growth and survival.

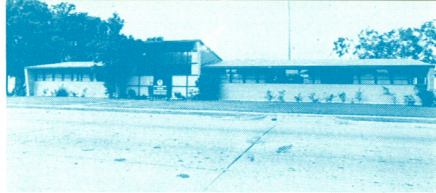
The remote sensing effort at the Miami Laboratory is concerned with interpreting the thermal patterns of the sea surface. Sea-surface temperature data are gathered by the infrared sensors aboard earth-orbiting satellites and are received by the Direct Readout Infrared Receiver (DRIR) in Miami, or by more sophisticated equipment at NOAA's National Environmental Satellite Service in Suitland, Md. The data are recorded on film as thermal images of the sea surface. In turn these images are interpreted to show the daily current patterns as fish—particularly the tunas and billfishes—are often associated with areas lying on the dividing line between water masses of different temperatures.

Environmentalists are becoming increasingly concerned with the effects of oils and oil products on marine life. In view of the increased effort of the oil and gas industries in waters over 300 feet, scientists are studying the role of petroleum products in the deep ocean and its relationship to associated marine life. Samples col-

lected from areas where both petroleum and marine life are abundant are being analyzed for the relation between hydrocarbon content of the oily material and that of the associated resources. These areas are also being studied from a biological viewpoint to determine the degree of harm which the plants and animals may suffer during their life cycles.

Important fisheries for lobster, shrimp, snapper, and grouper sustain commercial U. S. fishing vessel operations in the Bahamas, Caribbean Sea, Atlantic Ocean and off the coasts of Mexico and South America. Vessels operating in these fisheries either are permitted to do so by special agreement with the coastal countries concerned or the fisheries are outside the generally recognized territorial boundaries. Miami researchers collect information on these fisheries to determine potential yield, level of harvest, and the other information necessary to assure wise management, conservation and optimum use of the resource.

The off-shore recreational fisheries, such as the billfishes, tunas, snappers and groupers, also play a large role in describing the total fishing effort in this area. In order to utilize, manage, and conserve these species it is necessary to evaluate the impact of the sportsman as well as the commercial fisherman upon the resource. Historically, big-game fishing tournaments and their participants have kept good records of their catches as well as the effort necessary to produce the catch. Scientists are now consolidating this historical data and adding to it by personally collecting catch and effort information at the various big-game fishing tournaments in the Gulf of Mexico, the Caribbean Sea, along the southeast coast of the U. S., and throughout the Bahamas.



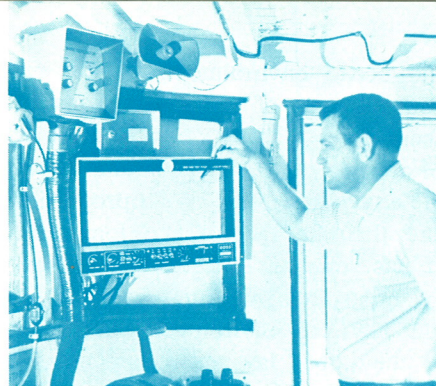
Pascagoula Laboratory, Pascagoula, Mississippi.

PASCAGOULA LABORATORY, PASCAGOULA, MISSISSIPPI

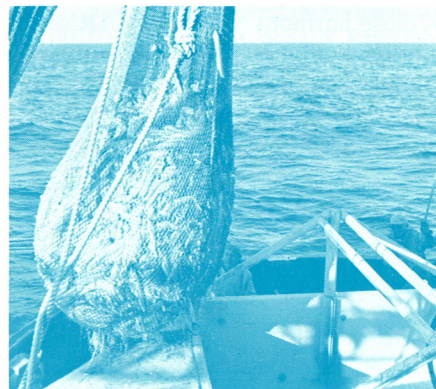
Included in the overall MARMAP plan are two additional surveys—a survey of the groundfish and shellfish resources (MARMAP Survey II) and a survey of the pelagic fish resources (MARMAP Survey III). Scientists based at the Pascagoula Laboratory are responsible for the Southeast Fisheries Center's efforts in these two areas. In order to effectively manage and conserve the fishery resources of our oceans it is necessary to have an adequate knowledge of the size of, the fishing pressures on, and the location of the adult populations which are being utilized. The first resource under investigation in the MARMAP Survey II Program is the sciaenid group which includes croakers and spots and its allied fisheries, the industrial fish fishery and the shrimp fishery. Research is underway that will lead to a more adequate understanding of the interrelationship of these fisheries and the manner in which they are exploited.



Longlining for Tuna in the Gulf of Mexico.



Scientist inspecting Traces of Fish on Echo Sounder.



Deep-Water Trawling for Hake

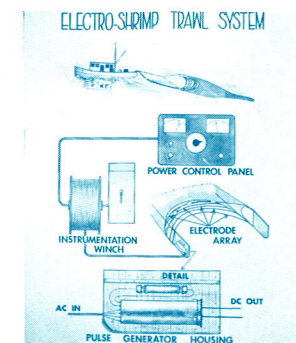


Large Catch of Fish caught by Exploratory Mid-water Trawl.



Exploratory Catch of Shrimp and Squid off South America.

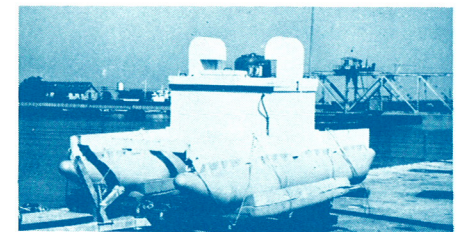
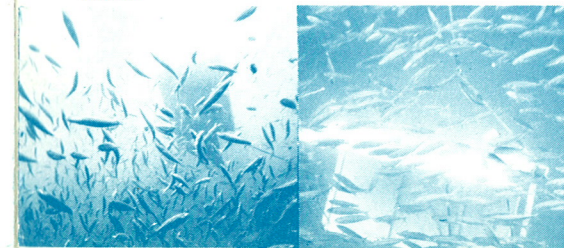
Efforts in the MARMAP Survey III Program are just beginning. Pelagic fishes are schooling, fast-swimming fishes such as the herrings, the anchovies, and the tunas. In order to assess the populations of these animals in a meaningful way it will be necessary to develop a reliable remote sensing technique. Currently, aerial photography using special films sensitive in the infrared area is being investigated as one possible means of assessment. Also under consideration is the use of the principles of hydroacoustics in a vessel containing underwater detecting device.



Electrical Shrimp Trawl System developed as a Resource Assessment Sampling System.

The electrical shrimp trawl system was developed in the early 1960's by Pascagoula based scientists. Further development was continued in 1970 to expand the system's capability to operate on large 70-foot commercial shrimp trawls. Efficiency studies now scheduled will complete the system and make it available as a resource assessment tool for use in the MARMAP Survey II program.

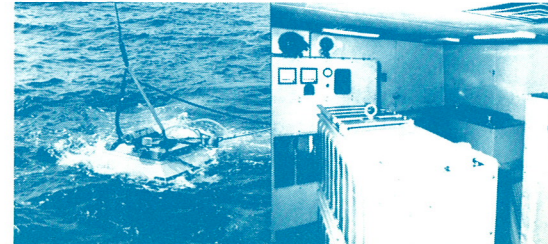
Electrical Fishing—120 kw Pulse Generator.



Prototype Fish Light Attraction Catamaran (Flac).

The recently acquired 120 kw pulse generator will be used during experiments leading to the development of electric midwater trawls and bottom trawls designed for use as assessment devices. The pulse generator is capable of creating relatively large electrical fields in seawater to aid in controlling and capturing wild fish. Field experiments are being conducted by Pascagoula personnel using a skiff rigged with nightlighting equipment to develop methods for attracting and leading pelagic schoolfish. These studies will establish the feasibility of attracting fish at offshore platforms and leading them clear of obstructions for capture by purse seines. The scientists also designed a towable self-contained unit with a 1,000 watt underwater mercury vapor lamp to demonstrate the feasibility of leading fish with a moving lamp. Experiments have shown that it is also possible to attract fish to artificial structures placed underwater. This research is designed to aid man in controlling and harvesting the fisheries in a manner more efficient than the traditional 'seek and find' mode.

RUFAS Vehicle used in conducting Resource Assessment Surveys above the seabed.



SOUTHEAST FISHERIES CENTER

AREA OF OPERATIONS

TROPICAL WESTERN ATLANTIC—CARIBBEAN SEA—

GULF OF MEXICO



OCTOBER, 1972

The areas under investigation by National Marine Fisheries Service Scientists and some of the research operations.